

### ABSTRACT OF THE DISCLOSURE

An automated seal selection, seal design, manufacturing, and post sales system allows a distributor or untrained user to select a replacement seal for a pump. The automated system designs and engineers the seal, whether standard or special, and creates all drawings, documentation, quotations, and other output forms. The automated system initiates selection from inventory or purchasing of materials to be used in the manufacturing operations, creates all manufacturing CNC programs for the components to be manufactured and downloads to CNC from manufacturing equipment. The system allows selection of a seal based upon a seal part number, or selection of a seal based upon the pump into which the seal will be installed and the operating conditions of the pump. The pump may be defined by searching through a database of existing pumps, or may be defined as a new pump if it is not in the pump database. Results of a previous compatibility analysis, perhaps performed by the seal manufacturer, may be accessed for existing pumps, or an on-line compatibility analysis may be performed for new pumps, to determine whether an existing seal fits the pump with no modifications. If no existing seal fits, the system provides two options. In a first option, a special seal is specified which will fit the pump with no modifications to the pump. An integrated design system determines dimensions for the special seal and its various components in real time providing immediate quotations including drawings. With a second option, modifications to the pump are defined so that a standard seal will fit. After a seal is specified, the system recommends materials of construction and allows the customer to select materials and other selectable options. The system then outputs a proposal including drawings with full dimensions, price, modification notes, warnings, a complete bill of materials, an order form, quote form and a dimensions verification form. The system then stores the information in a plant standardization survey for future retrieval. If an order is received, the drawings created using the system may be transferred to a manufacturing center where CNC programs are created in real time enabling immediate manufacturing. All engineering, design, and manufacturing programs may be created without human intervention. The system generated CNC programs may be automatically downloaded to the machine for manufacturing without human intervention.